
Glossary

802.11b Standard — An Ethernet specification for 11 Mbps wireless networks.

802.3 Standard — An Institute for Electrical and Electronic Engineers (IEEE) networking standard that defines the rules for configuring an Ethernet network as well as determining how elements in an Ethernet network interact with one another. By following 802.3, network equipment and network protocols can communicate properly.

“A” cable — 8-bit, 50-conductor SCSI cable.

Accelerated Graphics Port (AGP) — A high-speed graphics port that relieves the system bus and CPU of video-processing traffic.

accelerated hub architecture — Connects buses to the system bus independently through a dedicated hub interface to the PCI bus, yielding throughput of up to 266 MBps.

access time — The time it takes for the hard disk drive head to arrive at the location of the data. Access time depends upon the spin rate of the hard disk.

acknowledgment — In DHCP, a confirmation from the server to the client that the DHCP lease process completed successfully.

active cluster — A clustering method in which all nodes perform normal, active functions and then perform additional functions for a failed cluster member.

Active Directory — Microsoft’s LDAP directory service for Windows 2000 that is a comprehensive database capable of storing millions of objects such as users, groups, computers, and more. In terms of functionality, Active Directory users can log on and access resources anywhere in the enterprise regardless of geographic location and where the user account was originally created.

active termination — A requirement for faster, single-ended SCSI, active termination adds voltage regulators to provide a more reliable and consistent termination. Another type of active termination is active negation termination, which uses a more complex circuit to stabilize the voltage supply level, further eliminating electrical noise from the signal.

actual power (also **true power**) — The power in watts delivered from the utility company.

actuator mechanism — A mechanism that physically positions the drive heads to the appropriate location on the disk platter to read or write data.

Adaptive Fault Tolerance (AFT) — Installing two or more server network adapters to provide an emergency backup connection between the server and the network. If there is any problem with a cable, NIC, switch port, or hub port on the primary adapter, the secondary adapter can kick in within seconds to provide transparent recovery for applications and users.

Adaptive Load Balancing (ALB) — A technique of guaranteeing a consistent level of high server throughput and transparent backup links by implementing multiple NICs and balancing the data transmission load across them. ALB is also known as “asymmetric port aggregation.”

adapter teaming — Installing two or more network adapters in a server and then logically grouping them so that they appear to the operating system as a single network interface.

address (A) record — Also known as a host record, this is the actual record that resolves the host name to the IP address.

Advanced Intelligent Tape (AIT) — A Sony invention that uses an optional Memory in Cassette (MIC) chip on 8 mm tape that is able to quickly locate which of the 256 tape partitions contain the backed-up data.

Advanced Transfer Cache (ATC) — L2 cache located on the processor die and running at full processor speed.

AFS — Refers to Carnegie-Mellon's Andrew File System, a UNIX file system.

apparent power — The power delivered to a device after passing through the power supply.

arbitration — Determination of which of two or more devices has control over the bus.

ARP (Address Resolution Protocol) — Displays the resolution between the IP address and physical (MAC) address on the NIC by building a table as IP addresses resolve to MAC addresses. You can also modify the ARP cache and table entries.

ATA (AT attachment) — Drive technology that attaches to the 16-bit AT bus.

ATA-1 — An ATA standard that supports master, slave, or cable-select determination using jumpers and connecting to a 40-pin cable. The transfer rate is 3.3–8.3 MBps.

ATA-2 — An ATA standard supporting large drive support up to 137 GB. Also known as Fast-ATA-2 and Enhanced IDE (EIDE).

ATA-3 — An ATA standard that supports S.M.A.R.T. and transfer rates up to 16.6 MBps.

ATA-4 — An ATA standard that introduced the optional 80-conductor/40-pin cable and transfer rates up to 33 MBps. Also known as Ultra-DMA and Ultra-ATA. In reference to the transfer rate, you might also see UDMA/33 or Ultra-ATA/33.

ATA-5 — An ATA standard requiring the 80-conductor cable, also adding support for the IEEE-1394 (FireWire) specification and a 66 MBps transfer rate. Later implementations achieve 100 MBps and are also known as Ultra-DMA/100.

ATA-6 — The upcoming official 100 MBps ATA standard.

ATAPI (ATA Packet Interface) — A specification that allows other devices besides hard disks to plug into the ATA interface.

authentication — Verification of a person's identity based on their credentials (usually a username and password).

authorization — Verification that an authenticated user is permitted to access a network resource.

autoloaders — Robotics inside a tape library that automatically swap tapes in and out of drives.

backbone — A larger, common avenue through which data transfers take place from smaller lines connected to it.

back-end application — Application that run on the server on behalf of the client.

backprobing — Inserting the probe alongside the live connection.

back side bus — The data path used to access L2 cache.

Backup Domain Controller (BDC) — A Windows NT server that stores a read-only copy of the Primary Domain Controller's (PDC's) directory database, and is useful as an extension to the PDC for logging on users and computers. You must have a PDC before you can have a BDC.

backup window — The optimal period of time in which you can perform a backup, usually when most files are closed.

bandwidth — The transmission capacity of the network. For example, most Ethernet networks can transmit 10 Mbps or 100 Mbps.

baseline — A collection of data that establishes acceptable performance. You compare variances in performance against the baseline to determine if perceived performance issues are real.

bend radius — A limitation with network cable that impairs signal transmission when the cable is bent at too tight an angle. Typically, the cable should not bend more than four times its diameter to avoid signal loss.

bindery — A NetWare directory of users, groups, and network resources that provides network clients with the information that is stored on the NetWare server's local directory partitions. A bindery is restricted to the computer on which it

resides, and users can only use resources managed in the same bindery to which they log on.

BIOS (basic input/output system) — A series of input and output configuration settings for peripherals, adapters, and on-board components.

blind connector mating — Refers to the fact that you can't see the SCSI hot-plug connection take place inside the chassis.

BOOTP — The Bootstrap Protocol; uses a BOOTP server that can distribute IP addresses to clients (similar to DHCP).

bottleneck — One or more system components that hinder the performance of the rest of the system. Other system components must wait for the bottleneck item to complete its task before resuming activity.

bridge — A network device that connects separate networks together. Bridges connect similar or different network types, such as Ethernet and Token Ring.

buffer (or read cache) — On a hard disk, memory that stores part of the data read from the hard disk. Later, the CPU can request the same data and it will be retrieved from the buffer, which is many times faster than mechanically retrieving it from the hard disk.

buffered memory — Re-drives (amplifies) signals entering the memory module.

bulk erase — Removal of data from magnetic tape using a large magnet. This is not a standard practice anymore, because most tapes require special markings that bulk erasure removes.

bus — Set of wires or printed circuits that provides the data path to and from the processor, memory, hard disk, adapters, and peripherals.

bus mastering — A technology that allows devices to bypass the processor and directly access memory, resulting in an overall increase in processor performance. Bus mastering devices can also communicate among themselves without processor intervention. Bus mastering is actually a form of direct memory access (DMA).

bus topology — A network topology in which nodes link together in a series where each node is connected to a common backbone cable.

bus queue entries — A Pentium Xeon technology that holds outstanding bus and memory operations.

bus width — The number of individual data wires that transmit data. The more wires the component such as the motherboard has, the more data it can transmit in a given period of time.

cable management arm (CMA) — Rack equipment that allows orderly arrangement of cables, and expands and contracts so that you can move equipment on the rack without accidentally unplugging it.

cable select — The IDE drive's position on the cable indicates whether it is a master or slave.

cache memory — A small amount of memory that stores recently or frequently used program code or data for fast access. Processors and hard disks use cache, and cache is separate from main system memory (RAM).

caching-only server — A DNS server that has no zone database, either of its own or copied through a zone transfer from a primary domain server. Caching-only servers mostly function to improve performance by reducing the number of forwarded queries.

centralized management — The ability to administer a given system from a single location instead of disparate locations.

Challenge Handshake Authentication

Protocol (CHAP) — A flexible and common authentication protocol that supports encryption for a variety of operating systems. Microsoft also has two specific implementations: MS-CHAP for all Windows clients and MS-CHAP v2 for Windows 2000 clients.

chassis — The metal frame to which the motherboard is attached and that forms the case structure.

chipset — Circuitry that provides motherboard features and organizes the various buses.

client — A network workstation that requests and receives service from the server.

client-server — A network that begins with a LAN and one or more servers. The client-server network can also encompass a more complicated network configuration such as multiple, geographically distant LANs connected to one another across a relatively great distance, known as a wide area network (WAN).

clock speed — The number of instructions the processor can execute in a single instruction, measured in megahertz (MHz)—which is one million cycles per second. Instructions sent to the processor require a certain number of cycles, so the more cycles the processor can handle per second, the faster it operates, or “thinks.”

clock speed — The number of times in one second that the electrically charged quartz crystal located on the motherboard vibrates (oscillates). Also known as clock cycle, clock frequency, frequency, or cycle.

clustering — Redundant servers hosting the same application for the purpose of fault tolerance. If one of the servers fails, the remaining server(s) continues to serve the application to the network.

CNAME record — Stands for a canonical name record and is an alias that points to another host.

cold site — A disaster recovery facility designed to receive computer equipment. All power, water, air conditioning, raised floor, and other items requiring a long lead-time to acquire, install, and house a computer center are in place.

collision—An event that results when two nodes transmit packets to the network at the same time.

collision domain — A network boundary in which multiple nodes could potentially attempt to access the network at the same time.

command queuing — A method that allows the host adapter to send as many as 256 commands to the drive. The drive stores and sorts the commands for optimum efficiency and performance internally before responding to the host adapter.

communities — A group of SNMP hosts that each use the same community name. You can name the community whatever makes sense for your organization. The community name is not so much a grouping as it is a small measure of security. When SNMP queries are issued to a community, only members of that community respond, and the community name functions as a rudimentary password.

CMOS — Complimentary metal oxide semiconductor that includes a small amount of memory, the purpose of which is to store the BIOS settings.

compiler — Translates high-level programming language into the lowest language the computer can understand, machine language.

compression — Data formatted to use less storage space than unformatted data.

console — An inclusive term for the keyboard video mouse (KVM) and all attached servers.

ConsoleOne — A central management point for performing NetWare 5.1 administration.

container — In Novell NetWare, a general term for an Organization or Organizational Unit, which are hierarchical components of the NDS tree. All network objects must reside in a container in the tree.

convergence — A state in which all routers connected to a network have the same updated information.

copy backup — A backup that copies all selected files, but does not mark each file as having been backed up. Copying is useful to back up files between normal and incremental backups because it does not affect other backup operations.

counter — In Windows NT and 2000 Performance Monitor, a subset of an object that measures a particular aspect of that object.

crosstalk — Intruding signals from an adjacent twisted pair or cable.

cyclical redundancy check (CRC) — A calculation used by the sending device based on the data in the packet. The data arrives at the destination target and another calculation is performed using the same “formula.” If the calculation in

the packet matches the calculation performed by the destination device, the data is complete and considered error free.

daemon — The Linux and UNIX name for a service.

daily backup — A backup that copies all selected files that have been modified on the day that the daily backup is performed. The backed-up files are not marked as having been backed up.

daisy chain — Connecting one device after another on a SCSI bus.

data bus — The pathway along which data passes between the processor and memory.

datacenter — A term with two meanings, depending upon the context. It can refer to a consolidation of the majority of computer systems and data into a main location, or it can refer to one or more very powerful servers optimized as database servers—sometimes configured with as many as 32 processors.

data rate — The actual quantity of data transferred within the limitations of the bandwidth.

DDR SDRAM (double data rate SDRAM) — Transfers data twice per clock cycle, similar to RDRAM, but at a lower cost because DDR SDRAM is an open standard charging no royalties.

dedicated application — A server running a single application or service and nothing else. This helps to assure that application performance is unhindered by interference from other applications or services and also contributes to the stability of the server.

density — A measure of the number of devices or servers within a given area of floor space. Higher density means more servers in a given area, usually accomplished by stacking equipment in racks.

Desktop Management Interface (DMI) — Similar to SNMP, except that it contains specific information about an actual device.

DHCP server — A server that automatically allocates IP address configuration to DHCP clients.

differential backup — A backup that copies files that have been created or changed since the last normal or incremental backup, which can reduce

the amount of time that is required to complete the backup process. It does not mark files as having been backed up.

digital audio tape (DAT) — Originally a high-fidelity digital recording format, now used on 4 mm and 8 mm tape backups. Uses helical scanning to record data.

digital linear tape (DLT) — A digital tape recording format that allows up to 70 GB of compressed data to be stored on one rather large tape, which, unlike 8 mm or 4 mm helical scan technology, passes linearly over a fixed head.

digital multimeter (DMM) — A device that measures AC voltage, DC voltage, continuity, or electrical resistance.

Direct Memory Address (DMA) — A resource that ISA devices use to directly access memory without first having to access the processor, both increasing device performance and reducing processor load. There are eight DMA channels, numbered 0–7.

directory service — A network service that identifies all of the resources on a network and makes them available to applications and users. Resources can include things like email addresses; user, group, and computer accounts; and peripheral devices such as printers.

disaster recovery plan (DRP) — A comprehensive plan designed to recover an organization to productivity after a disaster.

discovery broadcast — A broadcast initiated by a DHCP client that seeks a DHCP server.

discrete L2 cache — L2 cache located inside the processor housing but not on the processor die.

Disk Druid — A Linux disk partitioning utility.

disk mirroring — See RAID-1.

disk platter — A rigid disk inside the sealed hard disk enclosure. Magnetic media on the surface of the platter store the actual hard disk data.

disk striping — See RAID-0.

distributed application — The application runs on the server. The client can send requests to the server but does not run the application or perform processing.

Distributed File System (Dfs) — A Windows NT/2000 service that deploys what appears to be a single directory structure over multiple physical file servers.

DNS zone — A naming boundary for which a DNS server is responsible.

domain — In Windows NT or 2000, a security and administrative boundary. Not the same as a DNS domain.

Domain Name System (DNS) — A service that stores a record of both the node's IP address and host name, and uses these records to service name resolution requests.

domain validation — The determined SCSI transfer rate is tested, and if errors occur, the rate is incrementally reduced and again tested until no errors occur.

double transition (DT) clocking — SCSI technology that transmits data on both the rising and falling edges of the clock cycle. On a 16-bit, 40 MHz bus, this yields a transfer rate of 160 MBps.

drive head — A magnetically sensitive device that hovers over the hard disk platter and reads or writes data to the hard disk.

drive logic — The circuitry included in the floppy or hard drive that interfaces with the disk controller.

driver — A software interface that allows the hardware to function with the operating system.

duplexing — Two host adapters with one drive on each adapter.

Dynamic DNS — The ability to accept name registrations from DHCP clients automatically.

Dynamic Host Configuration Protocol (DHCP) — A protocol that allows its clients to lease IP address configuration automatically from a DHCP server.

dynamic RAM (DRAM) — Main memory referred to as dynamic because the information requires con-

tinuous electrical refresh, or else the data can become corrupt or lost.

EEPROM (Electrically Erasable Programmable Read-Only Memory) — A chip that stores the BIOS programming. EEPROM has been mostly superseded by a similar memory known as flash BIOS.

EIA (Electronic Industries Alliance) unit (U) — A rack unit of measure equaling 1.75 vertical inches (4.45 cm).

El Torito — A CD from which you can boot the computer, provided the BIOS supports this feature.

electrostatic discharge (ESD) — A discharge of electrical energy that occurs when two objects with differing electrical potential come into contact with one another because the electrical charges seek to equalize. ESD can damage, destroy, or shorten the life of the server's electrical components.

enterprise — A geographically dispersed network under the jurisdiction of one organization. It often includes several different types of networks and computer systems from different vendors.

error correcting code (ECC) — Circuitry on the memory chip that uses check bits to verify the integrity of memory and corrects single bit errors.

Extended ISA (EISA) — An evolution of ISA, the EISA bus provides backward compatibility with older ISA devices and provides maximum bus bandwidth of about 33 MBps.

extended partition — A partition that provides the ability to store logical drives.

failback — A clustering term referring to restoring resources to a node that has been offline when it comes back online.

failover — An alternate system that takes over for a failed system. If one server fails, the remaining server(s) continue to provide service.

Fast SCSI — SCSI operating at 10 MHz instead of 5 MHz.

Fast Ethernet — A 100 Mbps Ethernet implementation, also known as 100BaseT.

fault tolerance — Continued service despite failure of a server or component.

FAT/FAT32 — A Microsoft-based file system. FAT is capable of 2 GB partitions and FAT32 is capable of 2 TB partitions. Neither file system offers local security features.

FDISK — An MS-DOS utility used to create hard disk partitions.

Fibre Channel (FC) — A storage area network (SAN) SCSI technology that can use gigabit Ethernet networks, but is primarily intended for fiber optic cable as the name implies.

Fibre Channel Arbitrated Loop (FC-AL) — A connection of up to 126 devices on a shared bandwidth fiber hub.

fiber optic cable — Technology that uses glass (or plastic) threads (fibers) to transmit data using light pulses. The receiving end of the message converts the light signal to binary values. The maximum length is 25 km (15.5 miles) with speeds up to 2 Gbps.

field replaceable unit (FRU) — A system with replaceable CPU, CMOS, CMOS battery, RAM, and RAM cache.

File Allocation Table (FAT) — A Microsoft-based file system compatible with nearly any operating system.

file server — A server that provides a central location to store files for network clients.

Filesystem Hierarchy Standard (FHS) — A UNIX directory structure to which Linux complies.

File Transfer Protocol (FTP) — A TCP/IP protocol that manages file transfers. Usually used to download files over the Internet.

fill buffers — The interface between the CPU and main memory.

firewall — A hardware or software solution that protects internal LAN users from the public Internet.

FireWire (IEEE 1394) — An extremely fast bus allowing up to 63 connected devices and up to 3200 Mbps throughput in the latest version.

flash BIOS — BIOS memory that can be reprogrammed without having to remove the chip. Instead, you download and run a program that updates the BIOS.

forced perfect termination (FPT) — An advanced form of SCSI termination in which termination is forced to a more exact voltage by means of diode clamps added to the terminator circuitry. FPT is very clean, and it's the best termination available for an SE bus.

FORMAT — A command line utility that creates a Microsoft-based FAT file system.

Fox and Hound (or tone generator and locator) — A pair of network tools. The tone generator applies a tone signal to a wire pair or single conductor and, using an inductive amplifier probe (locator) on the other end will permit you to identify that conductor within a bundle, at a cross-connect point such as a patch panel, or even at the remote end.

front-end application — An application running on the client that retrieves information processed by a back-end application.

front side bus — A 64-bit data pathway that the processor uses to communicate with L1 cache, main memory, and the graphics card through the North Bridge chipset.

full-duplex Ethernet — The addition of another pair of wires (total of six wires) to Ethernet cable and removal of collision detection to double the connection speed. Hosts can simultaneously send and receive data similar to a telephone conversation in which both parties can speak at once. (Half-duplex would be more like a CB radio conversation.)

generator kick (also **kick** or **kickstart**) — The time required for the backup generator to come online.

Gigabit Ethernet — Supports data transfer rates of 1 Gigabit (1000 megabits) per second.

GNOME — A GUI for UNIX administration.

Grandfather-Father-Son (GFS) — A backup strategy that uses three sets of tapes for daily, weekly, and monthly backups, retaining three months of archived data.

Graphics Memory Controller Hub (GMCH) — Replaces the North Bridge in newer chipsets, providing higher data throughput.

gray code — A binary code that identifies physical locations on the drive. Gray code is written to the drive by the drive manufacturer.

handshake — The squawking noise that faxes and modems make when establishing a connection.

head crash — When the drive head contacts the disk platter during operation. This can result in corrupt data or damaged hard disk media, especially on older drives.

heat sink — An attachment to the processor that either dissipates heat through cooling fins or a small cooling fan in addition to cooling fins.

helical scanning — A tape recording method that uses a rotating tilted head to record at an angle, allowing a higher-density recording format on the tape.

hierarchical bus — Various portions of the bus running at different speeds, with the slower buses hierarchically structured beneath the faster buses.

Hierarchical Storage Management (HSM) — A storage management strategy in which infrequently used data is moved from expensive hardware (hard disks) to less expensive media such as optical disks or magnetic tape.

high byte — The dangling bits resulting from terminating only 8 bits on a 16-bit bus (also known as high 9). Use special terminators that will terminate both the 8 and 16 bits.

High Performance File System (HPFS) — The native file system of IBM OS/2.

high voltage differential (HVD) signaling — SCSI signaling circuitry that uses a comparatively high voltage to extend the length of the SCSI chain to as much as 82 feet (25 meters).

host adapter — The more accurate term for what is usually referred to as an IDE or SCSI hard disk controller. The host adapter is the physical interface between the hard disk and the computer bus.

host — A network device (usually a computer) in a TCP/IP network.

HOSTS file — A plain text file that contains static, manual entries of host-to-IP-address mappings.

host name (“A”) record — A DNS entry that resolves a host’s IP address to its host name, allowing users to access a server using the name instead of the IP address.

hot fix — A NetWare feature that verifies the integrity of all disk writes, and if a write fails this verification, the data is redirected to a hot fix area and the original destination is marked as unusable. The default size of the hot fix area is a small percentage of a partition’s total size.

hot-plug (or hot-swap) — Add or remove a device without first powering down the computer.

hot site — A location containing computers and necessary peripheral equipment that may be occupied or utilized by a subscriber immediately after a disaster declaration to restore its own systems, applications, and data.

hot spare — A specific component (usually a hard drive) or a complete server that can immediately perform on the network and transparently perform the exact same function as the original.

hub — A network device that connects network cables together in a central, star configuration. Passive hubs simply make the connections, and active hubs (multiport repeaters) regenerate the signal to increase the distance it can travel.

HVD termination — High voltage termination for HVD signaling.

instances — In Windows NT and 2000 Performance Monitor, a subset of object counters that distinguishes like objects from one another. For example, instances would apply to multiple processors, hard disks, or NICs.

incremental backup — A backup of only those files that have been created or changed since the last normal or incremental backup, which can reduce the amount of time that is required to complete the backup process. It marks files as having been backed up by setting the archive bit.

Industry Standard Architecture (ISA) — A bus interface that connects ISA devices to the ISA bus, which is 16 bits wide and accommodates both 16-bit devices and older 8-bit devices. The ISA bus only operates at 8.33 MHz and is capable of transfer speeds up to 8 MBps.

inrush power — Temporary surge of power to the server when it is turned on.

Integrated Drive Electronics (IDE) — Refers to any hard disk with an integrated controller. Closely associated with the ATA standard.

intelligent hub (or managed hub) — A hub that allows administrators to monitor the traffic passing through the hub and configure each port in the hub.

Intelligent Input/Output (I2O) — An I/O design initiative that allows improved I/O performance via an I2O processor using the I2O driver model.

interface — The hardware connecting the drive to the computer motherboard.

interleaving — A process that allows memory access between two or more memory banks and/or boards to occur alternately, minimizing wait states.

Internet Message Access Protocol (IMAP) — In its current version (IMAP4), IMAP allows the email client to leave messages on the mail server even after logging on instead of downloading each one.

interrupt request (IRQ) — An electrical signal that obtains the CPU's attention in order to handle an event immediately, although the processor might queue the request behind other requests. There are 16 IRQs, numbered 0–15.

inter-site communication — Communication between hosts in different sites, such as over a WAN link.

intra-site communication — Communication between hosts within a single site, often over a LAN.

I/O Controller Hub (ICH) — Replaces the South Bridge in newer chipsets, allowing higher data throughput.

I/O port — A location in memory that the processor uses to communicate with the device.

IPCONFIG — A Microsoft utility that displays a wide variety of IP configuration data for a Windows 98/ME/NT/2000 system, including the IP address, subnet mask, and default gateway and other information.

IPX/SPX (Internetwork Packet Exchange/Sequence Packet Exchange) — The default Novell protocol implementation for all versions of NetWare until 5.x, which can also use TCP/IP.

iterative query — When a DNS server refers the resolver to another DNS server that might be able to resolve the request.

ISA bus — A 16-bit data pathway for slower expansion adapter cards and the floppy disk, mouse, keyboard, serial and parallel ports, and the BIOS via a Super I/O chip, which mitigates the need for a separate expansion card for each of the aforementioned items.

Journaled File System (JFS) — An OS/2 file system that contains its own backup and recovery capability. Using an indexing system and log to corroborate file changes, JFS can interoperate with the operating system to repair corrupt files.

keyboard, video, mouse (KVM) — A console that enables you to control multiple servers from a single keyboard, video monitor, and mouse.

L1 cache — A small amount of memory (usually 32–64 KB) that provides extremely fast access to its data because of its proximity to the processor and because it runs at the same speed as the processor itself—not at the speed of the motherboard.

L2 cache — Provides the same basic benefits as L1 cache, but it is larger, ranging from 256 KB to 2 MB.

lease — The length of time for which a client receives IP configuration from a DHCP server.

Level 2 Tunneling Protocol (L2TP) — A relatively new VPN protocol that requires an established certificate authority. Clients establishing a connection must download a digital certificate from the certificate authority. The certificate then validates the connection attempt over the VPN connection attempt.

Lightweight Directory Access Protocol (LDAP) — A directory service standard for enabling searches and queries to locate, identify, and utilize resources among networks.

line conditioner — A device that filters out power inconsistencies, temporarily bridges power in the event of a brief brownout, suppresses high voltage spikes, and provides overall buffering between building power and the system.

Linear Tape Open (LTO) — A collaborative technology effort headed up by HP, IBM, and Seagate to provide extremely high tape capacity and restore capability.

Linear Tape Open - Cartridge Memory (LTO-CM) — Memory in Ultrium tapes that transmits tape characteristics using radio frequency (RF) signals.

link aggregation — Combining multiple adapters into a single channel to provide bandwidth greater than the base speed of the adapter (10, 100, or 1000 Mbps). Link aggregation works only across multiple source address/destination address pairs.

Linux — A version of UNIX that operates on PCs as well as Alpha RISC and PowerPC platforms.

Linux Loader (LILO) — A Linux boot management utility that allows you to select from two or more operating systems at boot time.

LMHOSTS file — A plain text file that contains static, manual entries of NetBIOS name records.

load balancing — Distributing a network role between two or more servers.

local area network (LAN) — A collection of computers in close proximity to one another on a single network.

load equipment — Anything connected to the UPS that draws power, usually servers and possibly other network equipment.

logical drive — A section on the hard disk that appears to the operating system as if it were a separate hard disk, and that has its own drive letter.

logical unit number (LUN) — A subunit of the SCSI device, used to identify items within the device.

Logical Volume Manager (LVM) — An OS/2 utility that allows you to span a single partition across multiple physical disks, and partitions can increase in size without reformatting. You can also add or move hard drives without altering the drive letter.

low voltage differential (LVD) signaling — Similar to HVD except for use of lower voltage and shorter cable lengths (39 feet, or 12 meters).

LVD termination — Low voltage termination for LVD signaling.

MAC (Media Access Control) address — A globally unique identifier found on each NIC.

magic packet (or wake-up packet) — A packet consisting of 16 copies of the MAC address sent to the host system from a server system, which has a remote network management application installed. When the WOL NIC receives the magic packet, the server turns on.

Mail Exchanger (MX) record — Routes mail to the appropriate server(s) for members of the domain.

mainframe — The most powerful level of computer classification, mainframes are extremely large and powerful computers. Also known as “big iron.”

Management Information Base (MIB) — A database of definitions for the specific SNMP device being monitored.

Management Information File (MIF) — A DMI database of information such as model ID, serial number, memory, and port addresses.

mapping — In virtual memory, copying virtual pages from disk to main memory.

master (drive) — The drive that receives the first drive letter assignment from the operating system and contains a boot record.

master server — An authoritative DNS server that transfers zone data to one or more slave servers. (“Authoritative” means that the server is configured to host the zone and return query results.)

mean time between failure (MTBF) — The anticipated lifetime of a computer or one of its components.

media access method — A method to place the data packets transmitted from the NOS software to the physical network device (such as a NIC) and then to the wire.

member server — A Windows NT server that is similar to a stand-alone server, but is a member of the domain.

memory address — Some devices reserve a dedicated region in system memory that is unavailable for use by any other device, application, or the operating system. This can help device stability by ensuring that nothing else trespasses the memory, which causes system errors.

memory core dump — Representation of the contents of memory in the event of a problem, also known as simply a “memory dump.”

memory leak — A program that uses system memory but does not release it when finished. A memory leak consumes memory over time, and causes performance problems because more hard disk virtual memory is required. Eventually, memory leaks can cause a system to return out-of-memory messages or crash.

mezzanine bus — An add-on bus used to increase the number of processors in a single system.

midrange computer (or minicomputer) — A broad computer classification that lies somewhere

between desktop workstation and mainframe computer.

modem pool — One or more external physical devices that represent several modems.

motherboard — The heart of the computer, which attaches to the chassis and includes slots, sockets, and other connections for server components.

mount — A reference to preparing a Novell NetWare volume for use. You mount or dismount volumes.

multihomed — Computers using NICs with multiple ports or multiple NICs to increase effective network throughput.

Multipurpose Internet Mail Extensions (MIME) — A protocol that adds the mail capability of attaching and transferring multimedia file attachments. To use MIME, you must also have an email client capable of decoding the MIME format.

multistation access unit (MAU) — A networking device that looks much like a hub except that it includes an RI (ring in) and RO (ring out) port. Tokens still pass from one host to the next in a logical ring.

multithreading — Two or more simultaneously running program threads. Multithreading is useful for improving performance. Multithreading requires an operating system that can support this, and programmers must be careful to write applications so that threads do not interfere with one another.

multi-user mode — The mode in which a Linux/UNIX server and its resources are available to network clients.

N+1 — A term that describes the expandability of a given server component or components, or space provided for expandable components. “N” is a variable that refers to the quantity of a given component installed in a system, and “+1” refers to a spare component.

Name Server (NS) record — Specifies what DNS servers are delegated servers for the domain, meaning that the server specified in the record can resolve queries authoritatively.

NetBEUI (NetBIOS Enhanced User

Interface) — A small, fast protocol optimized for small networks.

NetBIOS — Broadcast-based name resolution scheme where a client simply broadcasts the NetBIOS name of the computer it wishes to reach to all of the computers on a subnet. The broadcast message identifies a computer that acknowledges the broadcast and establishes a communication link.

NETSTAT — A command-line networking utility that shows TCP/IP protocol statistics using any of several options. One of the most useful options is -r, which shows the routing table. This is useful in verifying the efficiency of the routing tables.

NetWare File System — Novell's file system that offers large volume support, efficient cluster size, and local security.

NetWare Loadable Module (NLM) — Programs that run on a NetWare server. An NLM might include a management utility or server-based applications such as a database engine.

network — A collection of two or more computers connected with transmission media such as network cable or wireless means, such as radio or infrared signals. Usually includes other devices such as printers.

network applications — Server-based programs that run in memory and on the processor on behalf of other servers or clients.

network attached storage (NAS) — One or more storage devices attached to a network, most commonly Ethernet. Simple to configure, you plug in the power, connect it to the network, and turn it on.

network device — Any device connected to the network for purposes of communicating with other network devices. (A network device is also known as a host in most networks.)

Network File System (NFS) — A UNIX file system that makes files accessible over a network.

network interface card (NIC) — The workstation's adapter card that connects to the network

and through which network communication takes place.

network operating system (NOS) — Provides file and printer sharing, centralized file storage, security, and various services. Primary examples of a NOS include Microsoft Windows NT or 2000, Linux, IBM OS/2, or Novell NetWare.

network resource — An object users can access from across the network, such as printers, files, and folders.

network utilization — The percentage of bandwidth in use in a given period of time.

node — An active device connected to a network, such as a computer or printer, or networking equipment such as a hub, switch, or router.

non-maskable interrupt (NMI) — An interrupt that takes priority over standard interrupt requests. An NMI is useful to stop the system or issue a message in the event of critical events or failures such as failing memory.

normal backup — A backup that copies all selected files and clears the archive bit for each one.

North Bridge — A chipset element that divides the processor bus from the PCI bus and manages data traffic to and from the South Bridge, and components on the FSB and PCI bus.

Novell Directory Services (NDS) — A hierarchical database of network resources that allows users from anywhere in the enterprise to access resources throughout the organization, as opposed to logging on to a single server and accessing only resources available from that server.

Novell Storage Service (NSS) — Operates alongside the traditional NetWare file system to support large files, improve performance, and provide flexible storage management.

NT File System (NTFS) — A Microsoft-based file system designed for Windows NT/2000, offering large volumes and local security.

noncondensing relative humidity — Absence of moisture accumulation, such as on the outside of a cold glass.

null cable modem — A special cable that uses special crossed wires to simulate a modem presence, allowing data to travel between two hosts without an actual modem or network connection.

objects — In Windows NT/2000 Performance Monitor, resources such as Processor, Memory, PhysicalDisk, and Network Segment.

offer — The DHCP server's proposed IP address and configuration to the DHCP client.

online retention period (OLRP) — References how far back in time a tape library can restore from tape without manual intervention.

Open Shortest Path First (OSPF) — A routing protocol that builds its routing tables using a link-state algorithm, which calculates the shortest path to each host based on the network topology, not just the fewest number of hops (as with RIP).

optical disk — Any disk written and read by laser, including CD-R, CD-RW, DVD, and so forth.

overclocking — Increasing the speed of the motherboard clock and/or the CPU to accelerate the clock speed, which can yield a performance increase. Not recommended on servers because of the higher risk associated with higher temperatures and a reduction in overall stability.

oversubscribe — A network connection with network utilization that exceeds an acceptable baseline for the available network bandwidth. The network utilization has a direct relationship to network bandwidth: the higher the network bandwidth, the lower the network utilization.

“P” cable — 16-bit, 68-conductor SCSI cable.

packetization — A data transfer method that reduces the overall communication overhead. Previously, data was transferred over the SCSI bus using a series of phases to set up and transfer data. Packetization streamlines this process by combining the process into a packet, reducing overhead.

page fault — When the operating system requests a needed page of data or instructions that is not currently in memory.

paging (or swapping) — Copying virtual pages from disk to main memory.

paging file — Microsoft term for a Windows NT 4.0 or Windows 2000 swap file.

parallel bus — A SCSI reference meaning that multiple wires on the cable can transmit data at the same time.

parity — In SCSI, an encoding scheme that represents data appearing on other drives.

partitionless — Using an existing DOS or Windows partition instead of creating a partition manually during installation using FDISK or Red Hat's Disk Druid partitioning tool.

passive cluster — A clustered server with identical services as its failover partner. A passive cluster partner remains in an idle node state until such a time as the primary node fails.

passive hub — A standard hub that simply receives signals and repeats them out to all ports.

passive termination — The simplest type of SCSI termination, but also the least reliable. Passive terminators use resistors to terminate the SCSI chain, similar to the way terminators are used on coaxial Ethernet networks. Passive terminators usually work best on short, SE SCSI-1 buses. It is unlikely you will find many passive terminators in servers.

pass-through termination — If the last position on the SCSI chain is in use by a device that does not terminate itself, you can place a terminator over the connection, which allows signal transfer to and from the device while also providing the necessary termination.

Password Authentication Protocol (PAP) — A security protocol that sends logon information in clear text. Using a packet sniffer, an eavesdropper can analyze the packet and retrieve the logon data.

PCI hot swap (PCI hot plug) — The ability to add, remove, or replace PCI devices without first powering down the server.

PCI interrupts — Assignment of a designation to PCI devices that represent an actual ISA IRQ. The main benefit with PCI interrupts is that if no more IRQ addresses are available, PCI can use PCI steering to assign two or more PCI devices the same ISA IRQ.

PCI steering — Using PCI interrupts to assign two or more PCI devices the same ISA IRQ.

PCI-X (PCI-eXtended) — A 64-bit addendum to PCI 2.2 utilizing 64 bits and up to 133 MHz.

peer-to-peer (P2P) application — The server primarily exists to run software that allows peer computers to communicate with one another.

peer PCI bus — A bus architecture that increases available PCI bandwidth and expands the number of PCI expansion cards from the usual limit of four with a minimal impact on overall system bus bandwidth. This architecture usually involves dual peer PCI buses and two North Bridges, which connect to a primary PCI bus and a secondary PCI bus.

peer-to-peer network — A collection of networked computers with no logon server to verify the identity of users. Each network device has an equal (peer) level of authority.

Peripheral Components Interface (PCI) bus — A 32-bit data pathway for high-speed I/O for expansion adapter cards, USB, and IDE ports. The CMOS and system clock also connect to the PCI bus. The PCI bus connects to both the North Bridge and the South Bridge.

per seat — A licensing scheme that requires each client that connects to the server to have proper licensing.

per server — A licensing scheme that represents the number of concurrent connections allowed under the licensing scheme you purchased.

permissions — The configured level of access applied to a resource. For example, if a user can read a file but not change the file, then they have read-only permission.

Physical Address Extension (PAE) — Intel technology that allows the processor to utilize 36 bits to address up to 64 GB of memory.

pilot program — Isolating an upgraded server in a portion of the network that makes performance determination easier to determine and lessens negative impact should some part of a major upgrade fail.

Pin Grid Array (PGA) — An arrangement of pins on the underside of a processor. The pins fit inside a corresponding PGA socket.

Ping (packet internet groper) — An all-purpose utility for verifying that a remote host is accessible by sending small packets of data to which an accessible host responds.

plenum — The space between the dropped ceiling tiles and the actual ceiling, or the space between the raised floor surface and the concrete.

Point-to-Point Protocol (PPP) — A very flexible line protocol that interoperates with a variety of RAS software packages. PPP supports the NetBEUI, IPX/SPX, and TCP/IP protocols, data compression and encryption, and authentication protocols.

Point-to-Point Tunneling Protocol (PPTP) — A popular and easy-to-configure VPN tunneling protocol.

port aggregation — Similar to multihomed computers, port aggregation uses software to combine multiple ports from the server into a single logical connection to the network but with bandwidth that is multiplied times the number of ports.

positive pressure — The internal environment of a server case or cabinet that utilizes one or more filtered fans to supply main internal airflow throughout the server. Internal server fans draw only upon this filtered air.

POST (power-on self-test) — A BIOS verification of motherboard hardware.

Post Office Protocol 3 (POP3) — A line protocol that allows messages to be stored on the mail server for incoming email.

power distribution unit (PDU) — A device similar in function to a household power strip that connects multiple devices to a power supply, but it is capable of much higher power capacity.

primary domain server — The starting point of all DNS records. The zone database is readable and writeable on the primary domain server: You can add, remove, or modify DNS records.

primary partition — A bootable partition on which you can install operating system files.

process — A running program.

power factor — The difference between actual power and apparent power.

power supply unit (PSU) — The internal power supply powering a server or servers.

Primary Domain Controller (PDC) — A Windows NT server that stores the only read/write copy of the directory database. This database is a record of user and computer accounts, and is used for logging on users.

primary master server — There is only one primary master server per DNS zone, and it is the first and final authority for all hosts in their domain. Primary masters are the source for records that are copied to master or slave DNS servers.

PTR record — The actual record used in reverse lookups.

pull replication partner — In WINS, a replication partner that requests and then accepts changes from its push replication partners.

push replication partner — In WINS, a replication partner that responds to requests for changes from its pull replication partners.

Quick Arbitration and Selection (QAS) — Reduces overhead by reducing the number of times that arbitration must occur and by allowing a device waiting for bus access to do so more quickly.

Quarter Inch Cartridge (QIC) — A common tape format that is a quarter inch wide. A variant of QIC is the QIC Wide format, which is .315 inches (8 mm) wide. QIC cartridges are generally not sufficient for server purposes.

rack — A cabinet that houses stacked network equipment, storage, and servers. A rack can store multiple items in the same floor space.

RAID-0 — Also known as disk striping, a level of RAID that lays down data across two or more physical drives, benefiting from the combined performance of all drives in the array.

RAID-1 — Also known as disk mirroring, a level of RAID in which the controller writes the exact same data to two disks at the same time (redundancy).

RAID-0+1 — A level of RAID that offers the performance of RAID-0 and the redundancy of RAID-1. In this implementation, two channels and at least four drives are required. Data is striped across two or more disks in the first channel (RAID-0), and the data is mirrored to disks in the second channel (RAID-1).

RAID-5 — A level of RAID that offers the performance benefits of RAID-0 striping but also adds redundancy by use of parity with less overhead.

RAID cache — A high-speed memory cache that fills with data sequentially beyond the actual requested data in anticipation that the next data will soon be requested. If the data is indeed required, the RAID cache serves data more quickly than if data must be retrieved directly from disk.

RDRAM (Rambus DRAM) — Memory manufactured under license to Rambus. RDRAM is very fast, transferring data on both leading and trailing clock cycles.

recursive query — A query forwarded from one DNS server to another.

redundancy — The ability to continue providing service when something fails. For example, if a hard disk fails, a redundant hard disk can continue to store and serve files.

Redundant Array of Inexpensive (or Independent) Disks (RAID) — Utilization of multiple disks to improve performance, provide redundancy, or both.

registered memory — Memory that re-drives (amplifies) signals entering the memory module. Registered memory also enacts a deliberate pause of one clock cycle in the module to ensure that all communication from the chipset arrives properly. Registered memory is useful on heavily loaded server memory, and was designed for modules containing 32 or more chips.

remote access service (RAS) — The ability of a server to accept a connection from a client even when physically disconnected from the LAN.

remote monitoring (RMON) — An extension of the SNMP protocol, providing more comprehensive network monitoring capabilities. Instead of devices answering queries from the SNMP management system, RMON proactively sets off alarms for a variety of traffic conditions.

remote user — A user connected to the LAN from a geographically distant location, usually over a modem or virtual private network (VPN).

replication — Copying the database from one server to another, as in the case of a WINS server.

replication interval — The amount of time between WINS pull replication requests.

replication trigger — The WINS pull partner's message that initiates replication with the push partner.

request — The DHCP client's acceptance of the DHCP offer.

resolver — A host that requests DNS name resolution.

re-tension — A process that fast-forwards tape to the end without reading or writing data, and then rewinds all the way to the beginning again. This makes tension even throughout the tape.

reverse lookup zone (IN-ADDR.ARPA) — Useful for performing the reverse of a normal query: Instead of resolving a name to an IP address, it resolves an IP address to a name.

ring topology — A network topology in which all of the nodes are connected in a closed, single, logical communication loop.

RJ-45 (registered jack-45) — An eight-wire connector that connects Ethernet network devices.

round-trip time (RTT) — The time it takes for a Ping packet to reach its destination and return to the source.

router — A network device that connects multiple networks using routing tables and routable protocols. Routers use headers and a forwarding table to determine where packets go, and com-

municate with other routers to calculate the best route between any two hosts. Routers determine whether to forward or filter a packet based on the IP address and subnet mask, which identifies the network to which a host belongs. The router filters a message destined for a host on the same network, and forwards messages destined for a host on a different network.

Router Information Protocol (RIP) — A distance vector-based protocol that identifies the best route for a destination based on the number of hops.

run time — The number of minutes that batteries can power the system.

S-spec — An alphanumeric code printed on the processor that uniquely identifies the processor version and is more specific than processor stepping.

scalability — A server's ability to grow in terms of the number of processors.

scope — A range of IP addresses that the DHCP server distributes to DHCP clients.

SCSI-1 — The original SCSI implementation.

SCSI-2 — A version of SCSI that introduced Fast and Wide data transmission.

SCSI-3 — A compilation of several different documents, SCSI-3 can be mostly equivalent to SCSI-2 in its features unless several of the various SCSI-3 features are applied. At present, SCSI-3 can be as fast as 320 MBps under Ultra320.

SCSI-3 Parallel Interface (SPI) — See SPI.

SCSI ID — Unique numbering for each SCSI device to ensure proper SCSI operation.

SCSI Interlock Protocol (SIP) — The SCSI-3 parallel command set.

secondary domain servers — A DNS server that can receive a read-only copy of the zone database from a primary domain server. Secondary domain servers are useful for providing redundancy and load balancing.

segment — In reference to SCSI, dividing a SCSI bus. Each SCSI segment is electrically independent, and therefore capable of the maximum cable length as if it were truly its own bus. Each

segment requires its own termination, and each device must still have a unique SCSI ID across all segments.

server — A computer with more processing power, RAM, and hard disk capacity than typical workstations. A server has a server NOS such as Microsoft Windows NT or Novell NetWare, and provides file and printer sharing, centralized file storage, security, and various services.

Serial Line Internet Protocol (SLIP) — SLIP uses only the TCP/IP protocol and is useful for UNIX connections. SLIP is very basic and does not support authentication protocols, encryption, or compression.

servo mechanism — Detects precise cylinder locations on the platter using gray code.

services — A function of the NOS that provides server features to the network.

shielded twisted pair (STP) — Network cable that consists of two copper wires, each encased in its own color-coded insulation, which are twisted together to form a “twisted pair.” Multiple twisted pairs are then packaged in a metal (foil) sheath to reduce external signal interference.

Shiva Password Authentication Protocol (SPAP) — Shiva products (acquired by Intel) are a popular alternative to Microsoft RAS solutions. Shiva encrypts authentication credentials for Shiva LAN Rover software.

signaling — Transmission of data using electrical impulses or variations. These electrical transmissions represent data that the sender originates and the receiver translates based upon a mutually agreed-upon method.

Simple Mail Transport Protocol (SMTP) — A mail protocol that transports only basic text. SMTP is the protocol that transfers or forwards mail to an email server.

Simple Network Management Protocol (SNMP) — A network monitoring and management protocol. Its usefulness is comprised of several elements that work together with the ultimate purpose of informing the administrator of a changing

trend in the use of an object or alerting the administrator of an error, failure, or condition.

Single Edge Contact Cartridge (SECC) — A slot format processor that stands upright inside a motherboard slot, similar to adapter or memory slots. The cartridge contacts are covered by the housing.

Single Edge Contact Cartridge2 (SECC2) — A longer form of the SECC slot that accommodates Pentium Xeon processors. The cartridge contracts are exposed.

single-ended (SE) signaling — The original signaling method used on the SCSI-1 bus, that uses a common signaling method in which a positive voltage represents a one and a zero voltage (ground) represents a zero, resulting in binary communication.

single sign-on — A single logon that allows transparent access to multiple servers. For example, a single sign-on might allow you to log on to a NetWare server and pass the logon credentials to an NT 4.0 server as well.

single-user mode — In UNIX/Linux, a mode in which user connections are closed, ensuring that there are no locks on open files. This is not a complete shutdown because the operating system is still running.

site — The LAN(s) on either side of a WAN connection.

six-cartridge backup — Similar to a GFS backup strategy, but with a two-week history.

slack — Hard disk space wasted when data does not fill a complete allocation of cluster space.

slave (drive) — Equal in every way to the master, except that it does not receive the first drive letter assignment nor contain a boot record.

slave server — An authoritative DNS server that receives the zone transfer from the master and is named in the zone by an NS record.

SMARTDRV.EXE — An MS-DOS-based caching utility that significantly speeds up file reads and writes.

SNMP agent — A service that runs on the actual object you want to monitor using an SNMP management system.

SNMP management system — Sends requests for information from the monitored system, known as the SNMP agent.

SONET — A fiber optic transmission medium that is self-healing. If a line is cut, traffic redirects to another ring.

South Bridge — A chipset element that divides the PCI bus from the ISA bus.

SPI — SCSI-3 parallel interface, defining SCSI-3 standards in SPI-1 through SPI-3 releases. The original SPI release has been renamed SPI-1 for clarity when comparing against other successive SPI versions. SPI-1 is also known as Ultra SCSI or Wide Ultra SCSI.

SPI-2 — Also known as Ultra2 SCSI and Wide Ultra SCSI, a SCSI-3 standard that introduced SCA-2 connectors LVD signaling, and Fast-40 40 MBps transfer rate on a narrow (8-bit) channel or 80 MBps on a wide (16-bit) channel.

SPI-3 — Still in draft stage at the time of this writing, a SCSI-3 standard that introduces CRCs for data integrity, domain validation, DT clocking, packetization, and QAS. Also known as Ultra3 SCSI.

SPI-4 — The latest SCSI-3 specification, still in draft form at the time of this writing. Most hard disk and host adapter manufacturers have products using the standard's 320 MBps data rate. This data rate is accomplished by doubling the bus speed from 40 MHz to 80 MHz and using DT clocking. Manufacturers are calling this standard Ultra320.

stand-alone server — A Windows NT server that is not a member of the domain and does not store the directory database, but is useful as a file, print, or application server, or provides one or more services.

standby power supply (SPS) — A power switch technique that detects an interruption in line power and switches to a large transformer that stores a small amount of power required to bridge the time it takes to switch to battery power.

static IP address — An IP address that is manually and permanently assigned to a network host.

static load balancing — A clustering technology in which a cluster member remains idle until a failure occurs.

Staggered Pin Grid Array (SPGA) — Same as a PGA processor or socket format, except in a staggered arrangement to squeeze more pins in the same space (as opposed to straight rows).

star topology — A network configuration in which all of the nodes connect to a central network device such as a hub or switch. All nodes receive the same signal, reducing effective bandwidth, and the central network device can become a bottleneck because all data must pass through it.

Start of Authority (SOA) server — The authoritative server for information about the DNS domain; the domain cannot function without it.

stepping — The version of a processor.

storage area network (SAN) — Generally refers to Fibre Channel and any other type of network-based storage solution that is not server-based.

subfloor — A space between the concrete floor and the floor tiles; also known as the plenum.

subnet — A division in the network useful for limiting network traffic to a particular location; also known as a segment in many contexts.

subnet mask — A series of network identification numbers which, when compared against the IP address, identifies the specific network to which the host belongs.

superscalar — A processor architecture that allows a processor to execute more than one instruction in a single clock cycle.

switch — A networking device that separates a network into collision domains so that network rules can be extended. Each of the segments attached to an Ethernet switch has a full 10 or 100 Mbps of bandwidth shared by fewer users, resulting in better performance.

switch — Similar to a router in that it segments a network, and similar to a hub in that it connects network cables together in a central, star

configuration. Switches forward traffic at very high speeds.

switched fabric — A somewhat inexact reference to Fibre Channel storage connections. The connection can use any number of connection routes, depending on which one is deemed best at that particular moment.

switching hub — A hub that reads the destination address of each packet and then forwards the packet to the correct port.

symmetric multiprocessing (SMP) — The simultaneous use of multiple processors on the same server.

synchronize — The process of making data in one location consistent with data in another location. Synchronization is necessary to ensure that user accounts, for example, are consistent from one logon server to another. Synchronization also applies to items such as data files.

synchronous dynamic RAM (SDRAM) — Memory that operates at system clock speed.

Systems Network Architecture (SNA) Server — A Microsoft product that acts as a gateway between the client and the mainframe.

System Performance Monitor/2 (SPM/2) — Tool used to measure performance statistics in the OS/2 operating system environment.

tape library — A self-contained tape backup solution that is preloaded with several tapes. Most tape libraries include autoloaders to swap tapes.

TCP/IP (Transmission Control Protocol/Internet Protocol) — A suite of protocols in common use on most networks and the Internet.

terminator — A connector placed the end of a SCSI chain that absorbs the transmission signal to avoid signal bounce, making it appear to the devices as if the cable was of infinite length. Terminators also regulate the electrical load, and are therefore critical in establishing a reliable communications medium. Proper termination requires a terminator at both ends of the SCSI cable.

thermistor — A power supply thermostat that increases or decreases fan speed based on heat generated by the power supply.

thicknet — Based on the 10Base5 standard, which transmits data at 10 Mbps over a maximum distance of 500 meters (1640.4 feet). Thicknet is about 1 cm thick and has been used for backbone media because of its durability and maximum length.

thin client — A computer that receives its operating system environment, including applications and data, from the server.

thin-film — A magnetic medium applied to disks in a near perfect, continuous vacuum.

thinnet — Based on the 10Base2 standard (10 Mbps/Baseband transmission), networking cable that utilizes RG-58 A/U or RG-58 C/U 50 ohm coaxial cable with maximum segment lengths of 185 meters (606.9 feet).

threads — Program units of execution that can run separately from other threads. A thread is also the means by which an application accesses memory and processor time.

throughput — A measure of the quantity of data sent or received in a second.

time domain reflectometer (TDR) — A network troubleshooting device that measures the approximate distance to cable breaks.

time to live (TTL) — In DNS and WINS, the length of time a record is stored.

token passing — A method of collision avoidance that prevents two nodes from transmitting messages at the same time.

topology — The geometric configuration of devices, nodes, and cable links on a network. Topologies define how nodes connect to one another.

tower — An upright, free-standing computer case.

Tower of Hanoi backup — A tape strategy that requires relatively few tapes and backs up a daily history of 32 or more days.

TRACERT — A command-line trace routing utility that works like Ping but shows the actual router hops taken to reach the remote host.

traditional NetWare file system — Offers similar, competitive features to the NTFS file system, and allows you to create NetWare volumes.

transceiver — A device in a Token Ring node that repeats the network signal to move it around the ring.

transistor — An electronic device that opens or closes, or turns on or off to provide a logic gate or switch. Transistors provide the “thinking” capability of the processor.

trap — A message issued from the SNMP agent to the SNMP management system.

Travan — Created by Imation, a QIC-based standard capable of up to 20 GB compressed capacity.

Travan NS — A Travan format that can use hardware compression and fast data verification.

turnkey fax servers — Self-contained, freestanding devices in which the software and hardware are already installed. Except for some company-specific configurations, they are ready to fax right out of the box.

Ultra160, Ultra160+ — A collection of SCSI-3 standards that ensure compliance with a minimum level of SCSI-3 standards, offering speeds of 160 MBps.

Ultrium — A tape format that offers a native capacity of up to 800 GB and data transfer of 80–160 MBps. Ultrium tapes use a single reel cartridge that makes room for more tape and less mechanics. Ultrium cartridges can contain memory right on the cartridge that stores a redundant file log and user-defined information.

uninterruptible power supply (UPS) — A device that supplies power temporarily to allow administrators to perform a graceful shutdown of server equipment. Otherwise, the sudden loss of power to the server can be extremely damaging to the operating system, applications, and open data files.

UNIX — An open server operating system that allows vendors to specially modify it to their servers. UNIX usually operates on more expensive RISC-based processors.

UNIX File System (UFS) — The UNIX file system, which supports large volumes and local security.

unshielded twisted pair (UTP) — Network cabling that does not rely on physical shielding to block interference (as does STP), but uses balancing and filtering techniques to reduce signal interference. Noise is induced equally on two conductors, which cancel out at the receiver.

uptime — The continued operation of the overall server or specific components.

virtual console — A separate Linux context to which you can log on and perform various tasks while other virtual consoles or a GUI also run.

virtual memory — A portion of hard disk space that extends RAM memory.

virtual private network (VPN) — A communications session protected inside an encrypted virtual “tunnel” that is extremely difficult for intruders to breach. VPN is most commonly used over an Internet connection.

voice coil — A construction used by the hard disk actuator mechanism to move from one location to the next.

volume — In NetWare, a collection of files, directories, subdirectories, and even partitions.

wake-on LAN (WOL) — A technology that allows you to remotely wake a computer from its sleep mode. WOL works by sending a “magic packet” from a remote station to the WOL host. The “magic packet” contains 16 copies of the WOL host’s MAC address.

WAN link — The telecommunications connection that links the various networks that comprise parts of a wide area network (WAN).

WebSphere — An IBM application for building and managing web-based applications.

web farm — Multiple web servers providing the same web content.

wide area network (WAN) — Multiple, geographically distant LANs connected to one another across a relatively great distance.

Wide SCSI — Utilizing 16-bit transfer instead of 8-bit (which is “narrow” SCSI).

Windows Internet Naming Service (WINS) — A Microsoft NetBIOS name resolution service.

WINS proxy agent — A WINS-enabled computer that listens on the subnet for WINS broadcast messages, such as: query, refresh, release, and registration. The WINS proxy then communicates with the WINS server to resolve or register NetBIOS names.

workstation — Desktop computer with only enough hardware to service the needs of a single user at a time. Synonymous in most contexts with PC, desktop computer, or client.

X.500 ITU — Originally a standard for searching email directories but has much broader application. The standard is so large and complex that no vendor complies with it completely.

X Term — A text-based terminal interface within the Linux GUI.

X Windows — A GUI for the UNIX administration.

Zero Effort Networks (Z.E.N.) or ZENworks — A NetWare tool that administrators use to manage the user or server operating system environment by automatically distributing applications and controlling the user desktop.

zero insertion force (ZIF) — A socket format that allows gravity alone to seat the processor. The processor is then locked into place with a locking lever.

zone transfer — A copy of the zone DNS database that is copied to another DNS server.

